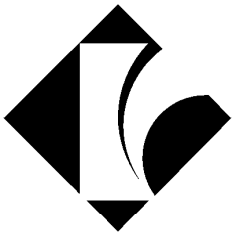
SMART WEIGHING SOLUTIONS



rinstrum

Data Logger Manual

Copyright

Disclaimer

Rinstrum Pty Ltd reserves the right to make changes to the products contained in this manual in order to improve design, performance or reliability.

The information in this manual is believed to be accurate in all respects at the time of publication, but is subject to change without notice. Rinstrum Pty Ltd assumes no responsibility for any errors or omissions and disclaims responsibility for any consequences resulting from the use of the information provided herein.

Warranty

Refer to Rinstrum Pty Ltd Terms and Conditions and Warranty documents.

Table of Contents

1.Introduction

This manual contains information on the configuration and cabling of the data logger. This serial data logger will capture data received from an indicator. Refer also the relevant indicator manual for further information on data communications.

1.1. Shipping Contents

The following table identifies the items shipped with the logger. Please check that your packing box contains the specified items.

Contents
• Data Logger • Manual • Cable PC to logger • Cable Indicator to logger • PP3 9V battery

1.2. Features

- Low power operation. Current requirement typically 1.2mA.
- Up to 10 days data capture from a 9V alkaline battery
- Can be operated from external power source, 10V to 32V DC.
- 4MB non-volatile flash memory.
- Stored data is retained in non-volatile memory the event of power failure.
- Capture bit-rate can be set to 2400,4800,9600,19200 bit/s.
- Download via standard serial port at 57600 or 115200 baud.
- Easy to field configure using DIP switches, no PC required to configure.

2. Operation

2.1. Overview

The data logger has two modes, ‘save’ and ‘command’.

These modes are selected by an internal input on pin 1 of the DB9 connector.

- When pin 1 is open or ‘high’, the Logger is in ‘Save’ mode and will store text data.
- When pin 1 is pulled ‘low’ to ground, the logger is in ‘Command’ mode and will accept commands.

2.2. Download Software

No special download utility is required, a general-purpose communications package such as Windows Hyperterm can be used.

2.3. Pushbuttons

Located inside battery compartment

- Press BOTH buttons at once to reset the logger and clear all memory.
- Press button S2 alone, to cancel a download.

2.4. DIP Switches

Located inside the battery compartment, these switches are used to enable options detailed below:

Helpful Tip: You can use a corner of the battery compartment lid to operate the DIP switches.

DIP switch 1:

OFF: Download/command bit rate 57600 bit/s

ON: Download/command bit rate 115200 bit/s

DIP Switch 2:

Reserved. Leave OFF.

DIP Switches 3,4:

Capture bit rate.

Capture Bit-rate	DIP 3	DIP 4
2400	OFF	OFF
4800	OFF	ON
9600	ON	OFF
19200	ON	ON

2.5. Battery Installation

Stored data will not be lost if battery is disconnected. This product uses non-volatile Flash memory.

- Use a 9 volt alkaline battery, type MN1604, PC1604, 522, 6LR61 or equivalent.
- Do NOT use a cheap zinc-carbon battery.
- Open the battery compartment by gently pressing and sliding the battery cover towards the edge of the case.
- Place the battery in the battery compartment. Ensure that the battery clip wires are clear of the DIP switches and push buttons.

2.6. LED Indicator

The LED indicator flashes when data is received. The length of flashes gives you information about the Data Logger status.

SHORT flash	Data has been received. System OK.
LONG flash	Data received, System warning. E.g. Low battery, memory full.
ON constant	Download in progress.
ON constant on power-up	System fault. Probably a flat battery. Try a fresh battery.

Note: The LED will only flash if data is received. This is because the logger goes into power-save mode if there is no data, in order to improve battery life and protect stored data.

2.7. Logger DB9 pin-out

The logger has a male DB9 connector similar to a PC serial connector.

Pin 5	Ground (Power and Data)
Pin 9	External Power 10V to 32V dc.
Pin 2	Receive Data (From Data Source)
Pin 3	Transmit Data (To PC)
Pin 1	Download Mode Control - connect to Ground to enter mode.

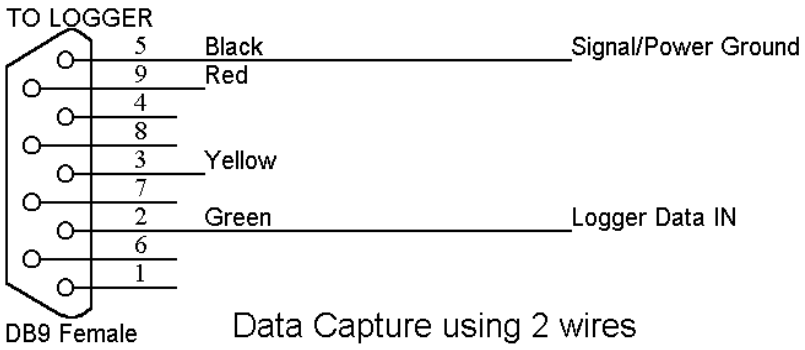
2.8. External Power

- External power between 10V and 32V DC can be applied to pin 9 of the data connector.
- The 9V battery may be safely left in place when external power is applied.
- The 9V battery will not be discharged when external power is applied.

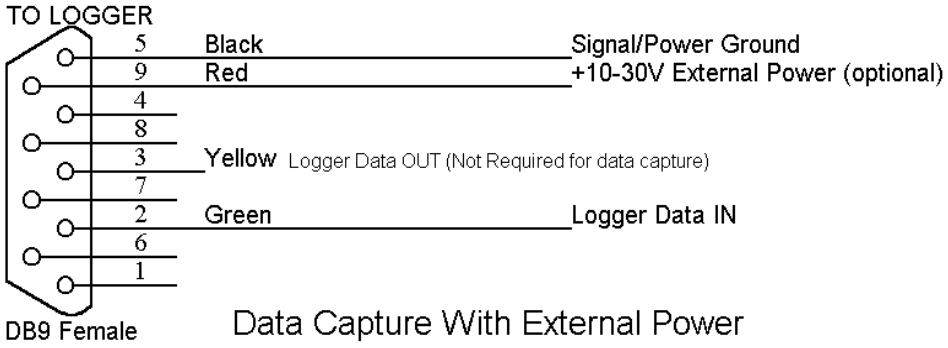
2.9. Data Capture Wiring

All that is needed for data capture is ground and data in.

External power can be supplied to pin 9 if required.



Data Capture using 2 wires



Data Capture With External Power

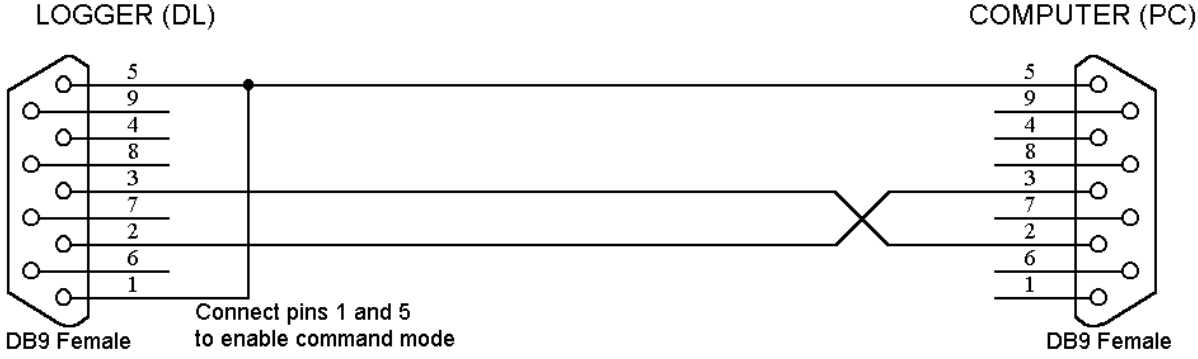
2.10. Logger to PC (Download) Cable

A download cable is provided.

One end is marked ‘PC’, and connects to your computer.

The other end is marked ‘DL’, and connects to the Data logger.

The connector marked ‘DL’ has pins 1 and 5 connected internally, to enable command/download mode.



Download Cable Circuit

3. Commands

The following command set may be used with a terminal program, or as a guide for writing your own data logger communications software.

Note: Commands are accepted ONLY when pin 1 of the Data logger connector is connected to Ground.

3.1. Download

Lowercase ‘d’. The Data Logger will instantly download all stored data at the baud rate selected by DIP switch 1.

Data logger will send ‘ok’ when the download is complete.

Download can be cancelled by pressing the Escape key on your PC.

Download can be cancelled by pressing pushbutton S2 (inside the logger battery compartment).

3.2. Info

Lowercase ‘i’: The Data Logger will instantly return version and model number data.

3.3. Zero (Clear)

Uppercase ‘Z’ (Shift-Z). All data will be instantly cleared from memory.

Data logger will reply with ‘ok’

3.4. Example Download Sequence: Using Hyperterm

Below is a typical download sequence using Windows Hyperterm. Use it as a general guide for your own operations.

Set-Up

1) Connect the Logger to PC cable. Remember to connect the plug labelled ‘DL’ to the Data logger, and the plug marked ‘PC’ to the computer RS232 serial port.

2) Start Hyperterm.

3) Find the Properties menu and select ‘Direct to Comm port’. Select the correct comm. port eg Comm 1, Comm2, etc. Also set the port speed to 57600 or 115200 depending upon the download speed you require from the Logger. Set the flow control to ‘software’ or ‘Xon-Xoff’.

4) After changing Comm settings, you will need to click on the ‘disconnect’ and ‘connect’ buttons in the main menu bar to enable those settings.

5) Verify your connection by connecting the Logger to the appropriate port and pressing the ‘i’ key. (MUST be a lowercase ‘i’. Check your CAPS LOCK status). You should get an Info message response from the Logger.

Download

1) From the Hyperterm menu, select Transfer-Capture Text. You will be prompted for a filename. Browse for an existing target file or type in a path and filename that you wish to save data into.

2) Click the ‘start’ button to enable data capture.

3) With the Logger connected, send a lowercase ‘d’ to the logger by pressing the ‘d’ key on your keyboard. (MUST be a lowercase ‘d’. Check your CAPS LOCK status). Download should begin and you should see the received data flashing across the screen.

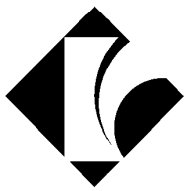
4) When download is complete the logger will send ‘ok’

5) Stop data capture using the ‘transfer-capture text-stop’ menu selections.

4. Specifications

Storage Capacity	
	Approx. 4.3 million characters.
	When memory is FULL, new data will not be stored, existing data will be protected.
Status LED	
	High efficiency LED flashes when data is received.
Electrical	
External Voltage	10-32V DC
Supply Current	Active 1.2mA Typ
	Standby 50uA Typ
Main Battery	9V Alkaline type MN1604, PC1604, 522, 6LR61 or equivalent.
Memory Backup	Nonvolatile Memory, 10-years with no power.
Interface	**9 pin male D connector for Data/Power**
Pin 2	Receive Data (From Indicator)
Pin 3	Transmit Data (To PC)
Pin 5	Common Ground
Pin 9	External Power Input
Pin 1	Download Mode Control
Physical	
Dimensions	66 x 112 x 28 mm
Weight	200 g
Colour	Light Grey
Case Material	ABS
Approvals	
	Part 15 FCC

SMART WEIGHING SOLUTIONS



rinstrum